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PATENT  
Customer No. 22,852  
Attorney Docket No. 03495.0304

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Application of: )  
Annick LIM et al. ) Group Art Unit: 1645  
Application No.: 10/734,622 ) Examiner: Not assigned  
Filed: December 15, 2003 )  
For: REPERTOIRE DETERMINATION ) Confirmation No.: 1998  
OF A LYMPHOCYTE B )  
POPULATION )

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

**INFORMATION DISCLOSURE STATEMENT UNDER 37 C.F.R. § 1.97(b)**

Pursuant to 37 C.F.R. §§ 1.56 and 1.97(b), applicants bring to the attention of the Examiner the documents listed on the attached PTO 1449. This Information Disclosure Statement is being filed before the mailing date of a first Office Action on the merits for the above-referenced application.

Copies of the listed documents, are attached.

This submission does not represent that a search has been made or that no better art exists and does not constitute an admission that each or all of the listed documents are material or constitute "prior art." If the Examiner applies any of the documents as prior art against any claim in the application and applicants determine that the cited documents do not constitute "prior art" under United States law, applicants

reserve the right to present to the office the relevant facts and law regarding the appropriate status of such documents.

Applicants further reserve the right to take appropriate action to establish the patentability of the disclosed invention over the listed documents, should one or more of the documents be applied against the claims of the present application.

If there is any fee due in connection with the filing of this Statement, please charge the fee to our Deposit Account No. 06-0916.

Respectfully submitted,

FINNEGAN, HENDERSON, FARABOW,  
GARRETT & DUNNER, L.L.P.

Dated: June 30, 2004

By: \_\_\_\_\_

Kenneth J. Meyers  
Reg. No. 25,146

## INFORMATION DISCLOSURE CITATION

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P A T E N T  
D A T A B A S E

## U.S. PATENT DOCUMENTS

Examiner Initial*	Document Number	Issue Date	Name	Class	Sub Class	Filing Date If Appropriate

## FOREIGN PATENT DOCUMENTS

	Document Number	Publication Date	Country	Class	Sub Class	Translation Yes or No

## OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

	Arakawa et al., Requirement of the activation-induced deaminase (AID) gene for immunoglobulin gene conversion (2002). Science 295, 130 1-6
	Arstila et al., A direct estimate of the human $\alpha\beta$ T cell receptor diversity (1999). Science 286, 958-6 1
	Baron et al., The repertoires of circulating human CD8+ central and effector memory T cell subsets are largely distinct (2003). Immunity 18, 193-204
	Berek et al., Maturation of the immune response in germinal centers (1991). Cell 67, 1121-9
	Bollum, F. J., Terminal deoxynucleotidyl transferase: biological studies (1978). Adv Enzymol Relat Areas Mol Biol 47, 347-74
	Bousso et al., Individual variations in the murine T cell response to a specific peptide reflect variability in naïve repertoires (1998). Immunity 9, 169-78
	Cabaniols et al., Most $\alpha\beta$ T cell receptor diversity is due to terminal deoxynucleotidyl transferase (2001). J Exp Med 194, 13 85-90
	Casrouge et al., Size estimate of the $\alpha\beta$ TCR repertoire of naïve mouse splenocytes (2000). J Immunol 164, 5782-7
	Delassus et al., PCR-based analysis of the murine immunoglobulin heavy-chain repertoire (1995). J Immunol Methods 184, 219-29
	Even et al.. T-cell repertoires in healthy and diseased human tissues analysed by T-cell receptor $\beta$ -chain CDR3 size determination: evidence for oligoclonal expansions in tumours and inflammatory diseases (1995). Res Immunol 146, 65-80
	Gilfihlan et al., Mice lacking TdT: Mature animals with an immature lymphocyte repertoire (1993). Science 261, 1175-8
	Gojobori et al., Relative contributions of germline gene variation and somatic mutation to immunoglobulin diversity in the mouse (1986). Mol Biol Evol 3, 156-67

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OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)	
	Honjo et al., Molecular mechanism of class switch recombination: Linkage with somatic hypermutation (2002) <i>Annu Rev Immunol</i> 20, 165-96
	Klein et al., Evidence for a large compartment of IgM-expressing memory B cells in humans (1997). <i>Blood</i> 89, 1288-98
	Klein et al., Human immunoglobulin (Ig) M+IgD+ peripheral blood B cells expressing the CD27 cell surface antigen carry somatically mutated variable region genes: CD27 as a general marker for somatically mutated (Memory) B cells (1998). <i>J Exp Med</i> 188, 1679-89
	Komori et al., Lack of N regions in antigen receptor variable region genes of TdT-deficient lymphocytes (1993). <i>Science</i> 261, 1171-5
	Lefranc et al., IMGT, the international immunogenetics database (1999). <i>Nucleic Acids Res</i> 27, 209-12
	LeMaoult et al., Clonal expansions of B lymphocytes in old mice (1997). <i>J Immunol</i> 159, 3 866-74
	Lim et al., Spread of clonal T-cell expansions in rheumatoid arthritis patients (1996). <i>Hum Immunol</i> 48, 77-83
	Lim et al., Combination of MHC-peptide multimer-based T cell sorting with the immunoscope permits sensitive ex vivo quantitation and follow-up of human CD8+ T cell immune responses (2002). <i>J Immunol Methods</i> 261, 177-94
	MacLennan et al, Antigen-driven selection of virgin and memory B cells (1986). <i>Immunol Rev</i> 91, 6 1-85
	Muramatsu et al., Class switch recombination and hypermutation require activation-induced cytidine deaminase (AID), a potential RNA editing enzyme (2000). <i>Cell</i> 102, 553-63
	Odendahl et al., disturbed peripheral B lymphocyte homeostasis in systemic lupus erythematosus (2000). <i>J Immunol</i> 165, 5970-9
	Oettinger et al., RAG-1 and RAG-2, adjacent genes that synergistically activate V(D)J recombination (1990). <i>Science</i> 248, 1517-23
	Okazaki et al., The AID enzyme induces class switch recombination in fibroblasts (2002). <i>Nature</i> 416, 340-5
	Pannetier et al., The sizes of the CDR3 hypervariable regions of the murine T-cell receptor $\beta$ chains vary as a function of the recombined germ-line segments (1993). <i>Proc Natl Acad Sci U S A</i> 90, 43 19-23
	Pannetier et al., T-cell repertoire diversity and clonal expansions in normal and clinical samples (1995). <i>Immunol Today</i> 16, 176-8 1
	Peggs et al., Assessing diversity: immune reconstitution and T-cell receptor BV spectratype analysis following stem cell transplantation (2003). <i>Br J Haematol</i> 120, 154-65
	Revy et al., Activation-induced cytidine deaminase (AID) deficiency causes the autosomal recessive form of the hyper-IgM syndrome (HIGM2) (2000). <i>Cell</i> 102, 565-75

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RECEIVED  
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CIPR

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)	
	Reynaud et al., A hyperconversion mechanism generates the chicken light chain preimmune repertoire (1987). <i>Cell</i> 48, 379-88
	Schatz et al., The V(D)J recombination activating gene, RAG-1 (1989). <i>Cell</i> 59, 1035-48
	Schittek et al., Natural occurrence and origin of somatically mutated memory B cells in mice (1992). <i>J Exp Med</i> 176, 427-38
	Thompson et al., Somatic diversification of the chicken immunoglobulin light chain gene is limited to the rearranged variable gene segment (1987). <i>Cell</i> 48, 369-78
	Tuaillon et al., Evidence that terminal deoxynucleotidyltransferase expression plays a role in Ig heavy chain gene segment utilization (2000). <i>J Immunol</i> 164, 6387-97
	Wack et al., An improved PCR-heteroduplex method permits high-sensitivity detection of clonal expansions in complex T cell populations (1996). <i>J Immunol Methods</i> 196, 181-92
	Wagner et al., Perturbation of the T cell repertoire in rheumatoid arthritis (1998). <i>Proc Natl. Acad Sci U S A</i> 95, 14447-52
	Wedderburn et al., Molecular fingerprinting reveals non-overlapping T cell oligoclonality between an inflamed site and peripheral blood (1999). <i>Tnt Immunol</i> 11, 535-43
	Williams et al., The contribution of somatic hypermutation to the diversity of serum immunoglobulin: Dramatic increase with age (2000). <i>Immunity</i> 13, 409-17
	Wu et al., Immunoglobulin somatic hypermutation: Double-strand DNA breaks, AID and error-prone DNA repair (2003). <i>J Clin Immunol</i> 23, 23 5-46
	Yoshikawa et al., AID enzyme-induced hypermutation in an actively transcribed gene in fibroblasts (2002). <i>Science</i> 296, 2033-6
	Zing et al., Cloning of size-selected human immunoglobulin heavy-chain rearrangements from third complementarity-determining region fingerprint profiles (1996). <i>Biotechniques</i> 20, 78-82, 84, 86-7

Examiner	Date Considered
*Examiner:	Initial if reference considered, whether or not citation is in conformance with MPEP 609; draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.
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